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Streamside Tailings Superfund Report

By the Montana Department of Health and Environmental Sciences and the U.S. Environmental Protection Agency

What's happening at the site?

The Montana Department of Health and Environmental Sciences (MDHES) and Atlantic Richfield Company (ARCO) are currently conducting a Superfund remedial investigation and feasibility study (RI/FS) of the Streamside Tailings Operable Unit of the Silver Bow Creek/Butte Area Superfund site. The investigation focuses on alternatives to address contamination problems along Silver Bow Creek from Butte to the Warm Springs Ponds. It began in fall 1991 and will continue through 1994. The remedial investigation/feasibility study will be available to the public in late 1994. A final decision is expected in early 1995.

As part of that investigation, ARCO has developed two treatability demonstration projects to be implemented this winter and spring. One project area is located along Silver Bow Creek near Rocker and the other is near Opportunity. The purpose of the project is to evaluate a combination of options involving removal, relocation and on-site treatment of streamside tailings. During construction, ARCO will evaluate near-stream excavation techniques, construction costs and short-term environmental impacts. For approximately three years after construction, ARCO will monitor the effectiveness of the projects for neutralizing, stabilizing and immobilizing the contaminants in the tailings. MDHES will observe and oversee all aspects of the projects. The results of the study will be used in the evaluation of potential cleanup remedies for Silver Bow Creek as a whole.

Both projects draw on the results of another MDHES treatability study, the Streambank Tailings and Revegetation Study (STARS), which has been underway at four test sites along Silver Bow Creek for approximately five years. The STARS study is conducted by the Montana State University Reclamation Research Unit and Schafer and Associates with funding from EPA and ARCO. It evaluates options for in-place reclamation of tailings by neutralization with lime and other calcium compounds, and revegetation with certain species of hardy, adapted grasses. The main difference between the two new projects and STARS is that the new projects both use methods to move tailings to more secure locations away from the main creek channel prior to neutralization and revegetation.

Demonstration project near Rocker

The Demonstration Project I site near Rocker was chosen because it is representative of conditions along Silver Bow Creek from Butte to Durant Canyon downstream from Ramsay (see Figure 1). In this reach the stream and floodplain tailings deposits are confined by the adjacent railroad beds. Many of the tailings are near the active stream channel and are subject to erosion and migration during floods. The objective of the project is to test whether near-stream tailings can effectively be removed and placed in protected locations at the edge of the floodplain without having to move them long distances and create major new disposal repositories.

Beginning in early February 1993, ARCO's contractor will excavate tailings within approximately 100 to 150 feet of Silver Bow Creek and place those tailings in four locations away from the main stream channel on the first bench of land above the creek. Most of the removal will probably be done with large backhoes or front-end loaders, but because part of the project's purpose is to test excavation techniques, other equipment may be tried also. The general locations of both the tailings removal areas and the tailings relocation areas are shown in Figure 1. After the tailings are removed, the excavated areas will be refilled with uncontaminated soils taken from the borrow area locations also shown in Figure 1. ARCO will test three different methods for treating and stabilizing relocated tailings, each involving a different method and amount of lime addition to the tailings when they are placed in the relocation site. Some

~ Cont. on page 2 ~

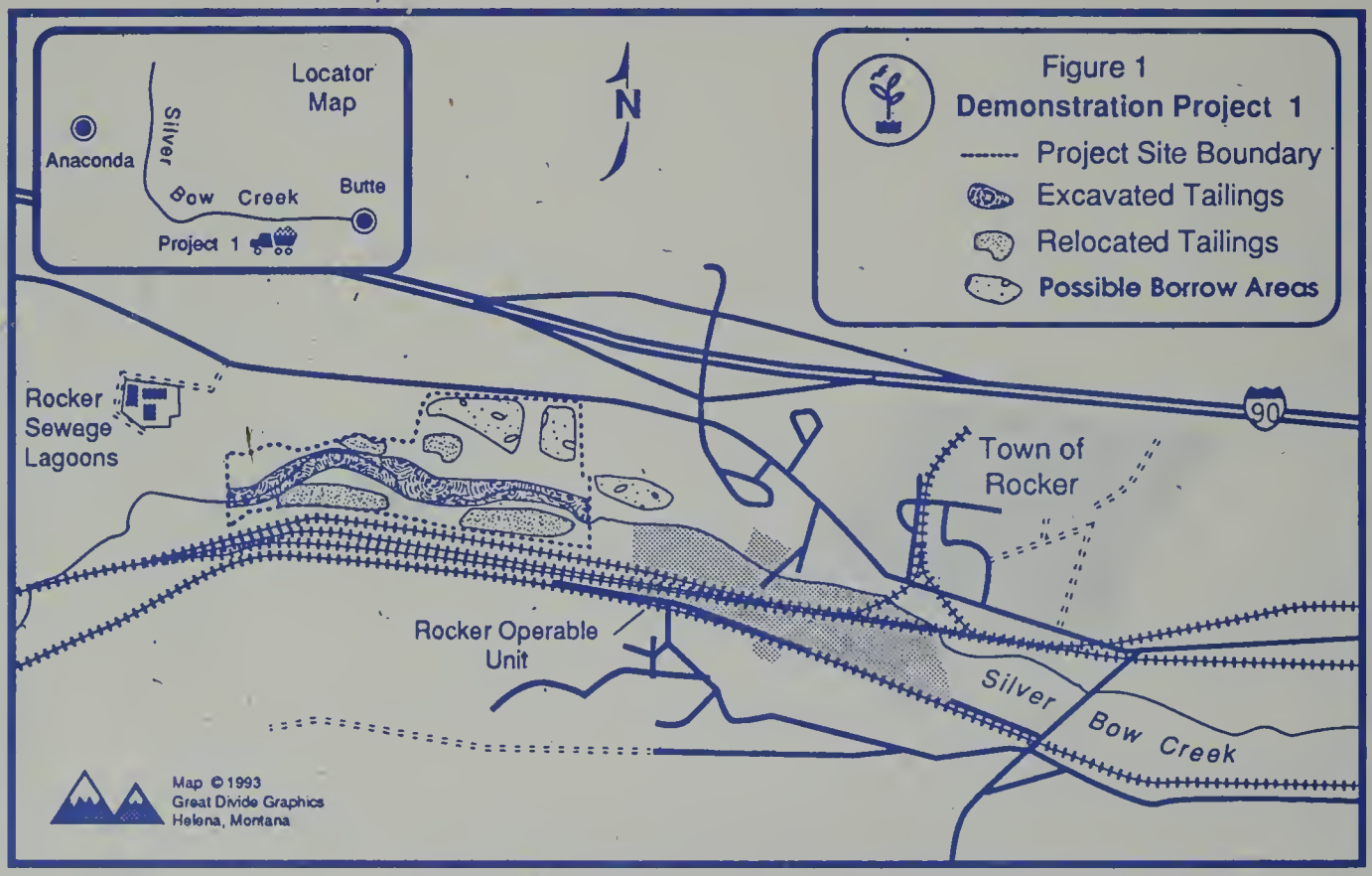
Project I *(from page 1)*

tailings at the project site will not be removed, but will be neutralized with lime and revegetated. ARCO also will add lime and revegetate the relocated tailings consistent with the approaches found most successful in the STARS investigation. Weed control also will be required at all disturbed areas.

The construction should take no more than four to six weeks and should be accomplished with little impact to Silver Bow Creek and the Rocker community. The only construction traffic on public roads should occur during transport of equipment to and from the site, removal of debris to a landfill, and transport of lime.

At other similar projects involving the application of large quantities of dry lime on the soil, problems have been encountered with fine lime dust being blown off site during windy conditions. ARCO will attempt to incorporate and cover the lime soon after it is applied in order to prevent dust problems. ARCO has also committed to cease liming operations if visible dust is observed blowing off site. The contractor will have to comply with the substantive requirements of Montana air quality regulations regulating dust and particulate emissions during construction.

After construction is complete, ARCO will install monitoring equipment and monitor the effectiveness of the project for at least three years. Ten to 12 monitoring wells and three sets of lysimeters will be installed to enable monitoring of contaminants in both the groundwater and unsaturated zone soil moisture. The lysimeters are used to collect samples of moisture from soils above the water table. Silver Bow Creek water will be monitored for contaminants both during and after construction. Plant growth will be evaluated by plant specialists. ARCO will report to MDHES on the cost and effectiveness of the construction operation and on the overall effectiveness of the tested treatments.



Are you on our mailing list?

If you wish your name to be added to or deleted from the mailing list for Streamside Tailings and the Silver Bow Creek site, or if you wish to update your address, please fill out, detach, and mail the following form to Jane Heath Stiles, Montana Department of Health and Environmental Sciences, Cogswell Building, Helena, MT 59620.

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Demonstration project near Opportunity

The Demonstration Project II site near Opportunity was chosen because it is representative of typical conditions along both Silver Bow Creek and the Clark Fork River in the upper Deer Lodge Valley. (Please refer to Figure 2.) The area is characterized by large expanses of contaminated tailings devoid of plant life, mixed with uncontaminated areas marked by healthy grasses and willows. The objective of this project is to test methods to effectively remove overbank tailings deposits with as little disturbance as possible to vegetated areas. Overbank tailings are those tailings located away from the stream on the terrace above the active stream channel. The proposed project was developed in response to concerns during the Mill-Willow Bypass removal at the Warm Springs Ponds that total removal of tailings material was too damaging to the riparian stream environment. In the Mill-Willow project, the stream channel and banks were totally eliminated when all of the tailings were removed. The stream had to be entirely reconstructed with clean material after the removal was completed. With the Opportunity demonstration project, ARCO will attempt to demonstrate that the major, significant portion of overbank tailings can be readily located and removed without destroying existing living vegetation.

ARCO will begin the Opportunity Demonstration Project II in March 1993. Using a variety of equipment, primarily large backhoes and loaders, ARCO will remove easily accessible tailings, which are typically found to a depth of about one to three feet, and transport them for disposal in the main tailings ponds north of Opportunity. The tailings then will be covered with crushed lime rock. This will form a crust which will prevent tailings dust from being created. The approximate tailings removal and disposal areas and the transportation route are shown in Figure 2. The area from which the tailings are removed will be amended with lime to neutralize its acidity and planted with an appropriate mixture of grasses to prevent erosion, establish a natural streambank (riparian) setting and support grazing. Also, some areas where tailings were not removed because vegetation limited access, or because the deposits were minor, will be amended in place with lime and seeded to improve vegetative cover.

Construction activity should take approximately six weeks. About 10 percent of the community horse pasture will be closed to prevent horses from entering the construction area. ARCO expects traffic interruption to be minimal. Trucks will carry tailings to the Opportunity Ponds along the new Mill-Willow divider dike just west of Silver Bow Creek. The only use of public roads will be for crossing the Silver Bow Creek bridge on Stewart Street and for delivery of equipment and lime to the site. ARCO has agreed to stop lime handling activities during windy conditions if dust is blowing off site.

Monitoring of the Demonstration Project II will be similar to that for the Rocker area project. Construction costs and impacts will be monitored and recorded during construction. Effectiveness of the demonstrated removal and treatment will be monitored after construction for three years by installing and sampling groundwater monitoring wells, collecting and analyzing soils samples, sampling surface water conditions, and evaluating vegetation cover and productivity. ARCO will provide MDHES with a monitoring report. The results of this project will be considered in the evaluation of alternatives for both the Streamside Tailings operable unit of the Silver Bow Creek/Butte Area Superfund site and the Clark Fork River operable unit of the Milltown Superfund site.

Get involved

Public involvement is vital to the success of the Superfund process. The public is encouraged to learn more about site issues and to voice questions, concerns, and suggestions. There are a number of ways the public can be involved in the site:

Attend public meetings:

MDHES will hold a number of public meetings throughout the process. These meetings will be held in the evening at convenient locations such as schools, community halls and local government buildings.

Review Superfund documents at information repositories:

The work plans for the demonstration project as well as other documents can be found at the following locations:

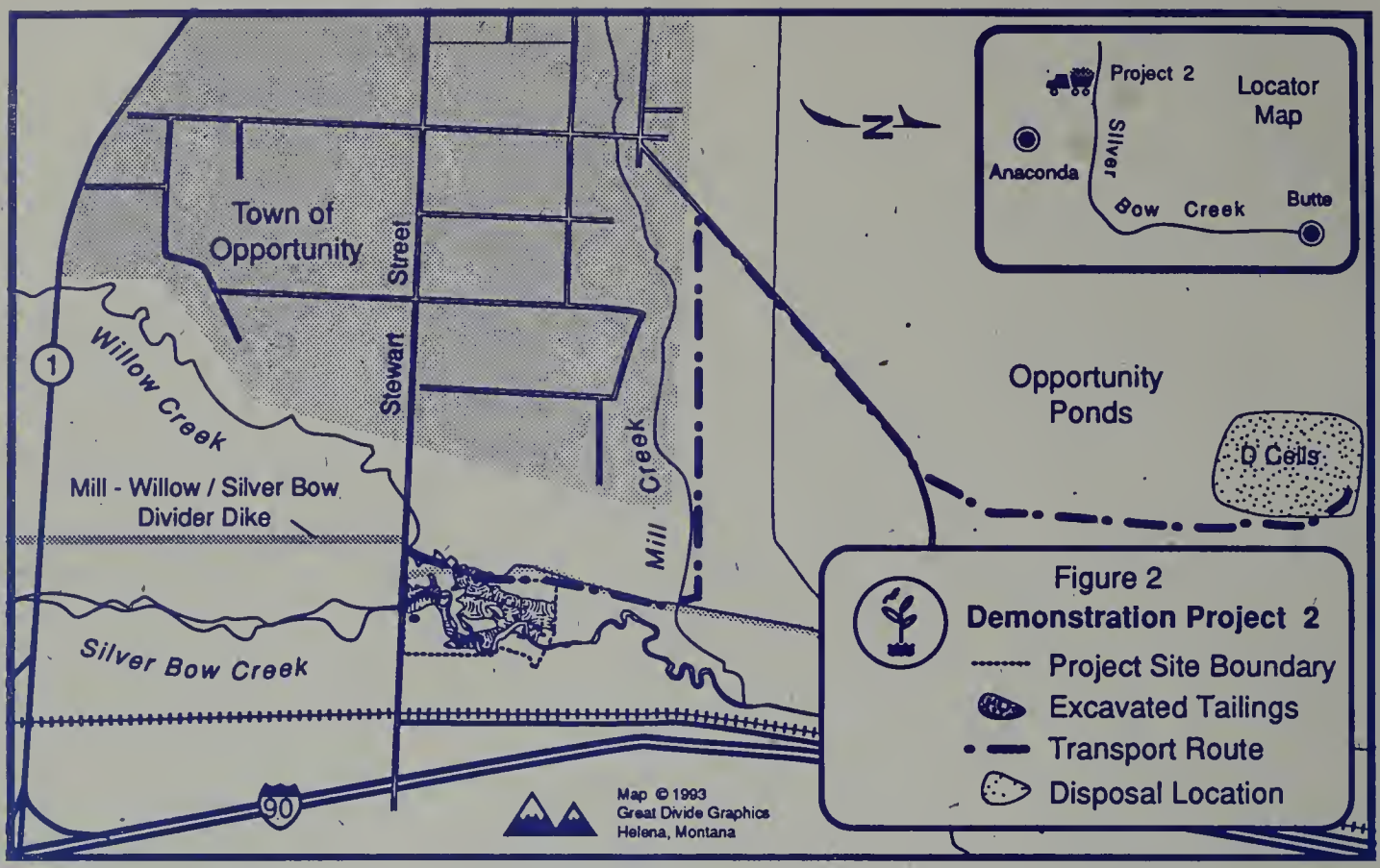
- Butte-Silver Bow Public Library
- Montana Tech Library in Butte
- Hearst Free Public Library in Anaconda
- U.S. Park Service Office, Deer Lodge
- Missoula Public Library
- University of Montana Library
- Montana State University Library
- State Library in Helena

Obtain progress reports:

MDHES publishes periodic progress reports such as this one about the Streamside Tailings. These progress reports are sent to interested people who have requested they be placed on the MDHES mailing list. If you want to be on the mailing list, please fill out and send in the form on page 2.

Contact site project officer and public information officer:

MDHES Streamside Tailings Project Officer Neil Marsh and Superfund Public Information Officer Jane Heath Stiles are available to discuss the project with the public by calling the MDHES Superfund toll-free number in Helena: 1-800-648-8465, from 8 a.m. to 5 p.m. weekdays, except holidays. The MDHES Superfund address is Cogswell Building, Helena, MT 59620.



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